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EXAMINER

MOORE, IAN N

ART UNIT PAPER NUMBER

2661

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13

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/624,072

Applicant(s)

HIRATA ET AL.

Examiner

Ian N Moore

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 5-11 is/are rejected.
- 7) ☐ Claim(s) 4 and 12 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>12</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Response to Amendment

1. This is in response to amendment filed on February 6, 2004 (paper # 11).

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on February 6, 2004 was filed after the mailing date of the --first office action-- on October 6, 2003. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1,2,5, 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mustajarvi'782 in view of La Porta'359.

Regarding claim 1, Mustajarvi'782 discloses a mobile IP network system (see FIG. 1, GPRS architectural network is the mobile IP network; see col. 2, lines 1-2) comprising:
a plurality of radio access networks (see FIG. 1, Radio Access Networks, RA1 and RA2) each connected to mobile stations via radio links (see FIG. 1, RA1 and RA2 connect to

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mobile stations via BTSs; note that each radio network can connect to plurality of mobile stations); and

an IP network to which a plurality of packet nodes (see FIG. 1, SGSN1 and SGSN2) for transferring IP packets are connected,

wherein each of the radio access networks has at least one base station controller (see FIG. 1, BSC 1) and at least one radio base station (see FIG. 1, BTS1) which is connected to the base station controller to perform radio communications with a plurality of mobile stations (see col. 7, lines 51 to col. 8, lines 33; note that each BSC performs radio communications with plurality of mobile stations), and

wherein each of the base station controllers in the radio access network (see FIG. 1, BSC1 and BSC2 in RNs) is connected to the plurality of packet nodes (see FIG. 1, SGSN1 and SGSN2) through a network (see FIG. 1, GPRS backbone network 13), receives an identifier of a previous packet node from another base station controller (see FIG. 1, SGSN1 from RA1) when one of the mobile stations moved into a control area of the base station controller (see FIG. 1, to a control area of BSC2/SGSN2 of RA2) form a control area of the another base station controller (see FIG. 1, from a control area of BSC1/SGSN1; col. 9, lines 29-34; when MS moves from RA1 to RA2, the identifier of old BS1/SGSN1 (i.e. routing node/area ID) is received at RN2; col. 10, lines 1-15),

selects a preliminarily designated specific packet node (see FIG. 3, new SGSN2) in accordance with a communication state of the moved mobile station (see FIG. 1, sine MS moves from RA1 to designated RA2, SGSN 2 must be selected; see col. 9, lines 29-34), thereby to selectively carryout IP packet communication for the mobile station using an

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identifier of a new logical connection established between the specific packet node and the mobile station depending on the communication state of the mobile station (see FIG. 3, step 9, note that IP packets transmission is performed by utilizing the updated/established a new logical link with a new TLLI, logical Link identity for IP packet transmission for mobile station via BSC/SGSN between a new SGSN 2 and the mobile station; see col. 10, lines 50-58).

Mustajarvi'782 does not explicitly discloses selecting the previous packet node (see La Porta'359 FIG. 2, Domain 1, Router 150) in accordance with a communication state of the moved mobile station (see La Porta'359 FIG. 2, after MD 114 moves into destination/selected domain 2), thereby to carryout IP packet communication for the mobile station using a previous identifier of a logical connection having been established between the previous packet node and the mobile station (see La Porta'359 FIG. 3, step 180 and 182; see col. 3, lines 1-3; note the Internet packets communication for the mobile device is selectively/exclusively performed by using the earlier/previous logical connection with COA and tunneling which has been established between router 150 and the mobile station).

However, this limitation is taught by La Porta'359. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Mustajarvi'782, as taught by La Porta'359 for the purpose of utilizing earlier/previous logical connection with COA and tunneling since La Porta'359 states that it will reduce the unnecessary control traffic and unnecessary processing; see col. 2, lines 15-25. The motivation being that by utilizing the existing logical connection with COA, it can reduce the disruption during handoff and reduce the amount of control traffic.

Regarding claim 8, Mustajarvi'782 discloses a base station controller (see FIG. 1, BSC2) for a radio access network (see FIG. 1, RA1 or RA2) for communicating IP packets with one of packet nodes (see FIG. 1, SGSN1 or SGSN2), each of which is connected to an IP network (see FIG. 1, GPRS backbone network 13 is the IP network; see col. 2, lines 1-2) and has a foreign agent function (see FIG. 1, either RA1 or RA2 can have foreign network/agent depending on the movement of mobile station), comprising:

- a first communication interface for connection to a radio base station (see FIG. 1, an interface that connects to BTS2/BTS1),

- a second communication interface for communication with a plurality of packet nodes connected to the IP network (see FIG. 1, an interface that connects to GPRS backbone network for communication with SGSN nodes), and

- a control unit (see FIG. 1, a combined controller/management system of BSC1/BSC2 and SGSN1/SGSN2) connected to the first and second communication interfaces,

wherein the control unit selectively requests one of the packet nodes selected (see FIG. 3, step 1, MS's requests is pass-through to a new selected SGSN; see col. 9, lines 56-67) in accordance with a communication state of a mobile station connected to the radio base station via a radio channel (see FIG. 1, when MS moves from RA1 to RA2, a mobile unit must connect to BSC2 via radio channel; see col. 9, lines 29-34) to establish a new logical connection

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to be used for IP packet communication (see FIG. 3, step 9, updating/establishing a new logical link with a new TLLI, logical Link identity) between the mobile station and the packet node (see col. 10, lines 50-58), or

to transfer IP packets for the mobile station to the base station controller using a logical connection established between the mobile station and the packet node, via the second interface (see FIG. 3, step 9; note that it is well known in the art that by using new established/updated logical link, the combined controller/management system must transfer the packets between the mobile unit and SGSN2 via the interface that connects to GPRS backbone network; see col. 9, lines 3-14).

Mustajarvi'782 does not explicitly to transfer IP packets for the mobile station using a previous of a logical connection having been established between the mobile station (see La Porta'359 FIG. 2, MD 114) and the packet node (see La Porta'359 FIG. 2, Domain 1, Router 150). See La Porta'359 FIG. 3, step 180 and 182; see col. 3, lines 1-3; note the Internet packets are routed/transferred to the mobile device by using the earlier/previous logical connection with COA to the router 150).

However, this limitation is taught by La Porta'359. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Mustajarvi'782, as taught by La Porta'359 for the purpose of utilizing earlier/previous logical connection with COA since La Porta'359 states that it will reduce the unnecessary control traffic and unnecessary processing; see col. 2, lines 15-25. The motivation being that by utilizing the existing logical connection with COA, it can reduce the disruption during handoff and reduce the amount of control traffic.

Regarding claims 2 and 9, Mustajarvi'782 discloses means for selecting, when a mobile station has moved into a control area of the base station controller from another radio access network (see FIG. 1, MS moves from RA1 to the selected control area of BSC2 of RA2; see col. 9, lines 29-34), to request the packet node to transfer IP packets for the mobile station to the base station controller using said identifier of the logical connection established (see FIG. 3, step 1, requesting to establish a new logical link with a new TLLI, logical Link identity for IP packet transmission for mobile station via BSC/SGSN; see col. 10, lines 50-58).

La Porta'359 discloses selecting a first packet node (see FIG. 2, Router 150) which has been communicating with the mobile station (see FIG. 2, MD 114) in the another radio access network (see FIG. 2, domain 1), to request the first packet node to transfer IP packets for the mobile station to the base station using said previous logical connection having been established (see FIG. 3, step 176; see col. 10, lines 46-56; note that care-of-address (COA) is requested from the domain 2 in order to communicate/transfer Internet data/packets between router 150 of domain 1 and mobile device utilizing the tunneling method with the existing/first logical/IP connection.)

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Mustajarvi'782 as taught by La Porta'359 for the same reason stated in Claims 1 and 8 above.

Regarding Claim 5, Mustajarvi'782 discloses the base station controllers as described above in claim 1. Mustajarvi'782 further discloses Radio access network 1 (i.e. RN1) is the home network and RN2 is the foreign network (see FIG. 1).

La Porta'359 disclose wherein each of said plurality of packet nodes has a foreign agent function (see FIG. 2, R6 has a foreign function) for transferring an IP packet received from a home agent node (see FIG. 2, Router 150) connected to the IP network (see FIG. 2, Internet 100) to any of the base station (see FIG. 2, BS8); see col. 2, lines 61 to col. 3, lines 9).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Mustajarvi'782 as taught by La Porta'359 for the same reason stated in Claim 1 above.

4. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over La Porta (U.S. 6,654,359) in view of well-established teaching in art.

Regarding Claim 6, La Porta'359 discloses a method of switching a connection for communication between a mobile station (see FIG. 2, a mobile device, MD 114) connected to any of a plurality of radio access networks (see FIG. 2, Domains 1 and 2 networks) via a radio link and a plurality of packet nodes (see FIG. 2, Routers R4, R150, R6) connected to an IP network (see FIG. 2, Internet 100), comprising:

a step of establishing a first logical connection to be used for IP packet communication (see FIG. 3, establishing a logical/IP connection for Internet/IP commutation; see FIG. 3, step 174 and 178) between a mobile station connected to a first radio access

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network (see FIG. 2, a mobile device 114 and Domain 1) and a first packet node (see FIG. 2, Router 150) which is preliminarily related with the first radio access network (see FIG. 3, step 174 and 178; see col. 10, lines 36-45; note that a mobile device establishes a first logical/IP connection to domain 1);

a step of connecting the mobile station to a second radio access network (see FIG. 2, Domain 2) adjacent to the first radio access network when the mobile station moves into an area of the second radio access network (see FIG. 2, MD 114 moves into Domain 2; see col. 3, lines 15-29; note that a handoff from domain 1 to domain 2 is triggered for a connection when MD moves into domain 2); and

a step of requesting from the second radio access network to the first packet node to communicate IP packets for the mobile station with the second radio access network while maintaining the first logical connection (see FIG. 3, step 176; see col. 10, lines 46-56; note that MD requests care-of-address (COA) from the domain 2 in order to communicate Internet data/packets with router 150 utilizing the tunneling method, thereby, maintaining the existing/first logical/IP connection);

wherein IP packets are communicated between the mobile station and the first packet node using the first logical connection via the second radio access network (see FIG. 3, step 180 and 182; see col. 3, lines 1-3; note the Internet packets are routed from the mobile device to the router 150 of domain 1 with COA, thereby, using the existing/first logical connection).

La Porta'359 does not explicitly disclose an identifier of the logical connection.

However, this limitation is taught by well-established teaching in art. Well-established teaching in art discloses an identifier of the logical connection. Note that it well-

know in the art that each logical connection must have an identification or identifier so that one can easily identify each connection when setting or tearing down the connection.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of La Porta'359, as taught by well-established teaching in art for the purpose of utilizing identification/identifier in the logical connection. The motivation being that by providing an identification/identifier in the logical connection, it can increase the ability to identify each connection when setting or tearing down the connection.

5. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over La Porta'359 and well-established teaching in art, as applied to claim 6 above, and further in view of Dynarski (U.S. 6,272,129).

Regarding claim 7, La Porta'359 discloses the first logical connection to be used for IP packet communication between the mobile station and a second packet node (see FIG. 2, Router R6) via the second radio access network as described in claim 6 above. La Porta'359 further discloses said second packet node being preliminarily related with the second radio access network (see FIG. 2, Router R6 is in the domain 2, thus, the router is initially/preliminarily related to the domain 2).

La Porta'359 does not explicitly disclose a step of closing, upon detecting that data transmission and reception ceased, the first logical connection and establishing the new logical connection (see Dynarski'129 col. 15, line 12 to col. 16, lines 4; note that the first/current logical PPP connection is closed when either the mobile station drops/ceases

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PPP connection (i.e. no data is transmitted/received) and/or inter-IWU handover occurs.

When inter-IWU handover occurs, the new logical PPP connection is established.)

However, this limitation is taught by Dynarski'129. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined system of La Porta'359 and well-established teaching in art, as taught by Dynarski'129 for the purpose of closing the current connection and re-establishing a new connection due to transmission termination, since Dynarski'129 states that it will provide a mechanism to utilize a same IP address assigned to the mobile after moving, see col. 16, lines 1-4. The motivation being that by closing one connection and re-establishing a new connection with the same IP address, it can increase the security and consistency since the same IP address will be assigned to the mobile.

6. Claims 3,10, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mustajarvi'782 and La Porta'359 as applied to claim 8 above, and further in view of well-established teaching in art.

Regarding claim 10, Mustajarvi'782 discloses wherein said control unit has means for notifying one of said radio access networks of identification information of a previous packet node which has been communicating with the mobile station (see FIG. 3, step 1; see col. 10, lines 1-15; note that a combined controller/management system notifies the old radio network regarding the old routing node/area ID of the old packet node which has been communication with the mobile station) when the mobile station moved out from the control area of the base station controller to a control area of the radio access network (see FIG. 1, when mobile station moves from the area controlled/managed by an old combined

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controller/management system (i.e. a system that includes BSC1 of RA1) to an area controlled/managed by a new combined controller/management system of the RA2.0

Neither Mustajarvi'782 nor La Porta'359 explicitly discloses notifying a base station controller in one of said radio access networks.

However, this limitation is taught by well-established teaching in art. Well-established teaching in art teaches notifying a base station controller in one of said radio access networks when a mobile station moves from one radio access network to another. In particular, it is well known in the art of radio/wireless communications that both old and new/targeted base station controllers must notify/communicate when a mobile station moves from one radio access network to another (i.e. a handoff).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combined system of Mustajarvi'782 and La Porta'359, as taught by well-established teaching in art for the purpose of notifying between old and new/targeted BSCs for a handoff. The motivation being that by notifying/communicating between BSCs, it can increase the reliability of continuous/un-interrupt data communication during the handoff.

Regarding claims 3 and 11, Mustajarvi'782 discloses means for monitoring communication packets for the mobile station which is communicating with said first packet node (see col. 9, lines 34-54; note that combined control/management system monitors/detects packet communication between a mobile station and each SGSN so that it can perform the cell and routing updates); and

means for switching a first logical connection having been established between the mobile station and the first packet node (see FIG. 3, step 1, see col. 10, lines 1-5; note the an existing/old logical link, TTLI, between MS and old BSC1/SGSN1 is updated by re-routing/switching) to a logical connection which is established between the mobile station and a second packet node preliminarily related to the base station controller (see FIG. 3, step 9, see col. 10, lines 50-57; note the an existing/old logical link, is updated/replaced by new/updated logical link, TTLI, between MS and new BSC2/SGSN2) when it is detected by the monitoring means that the transmission of communication packets for the mobile station is stopped (see col. 9, lines 44-50; note the transmission of packets for the mobile station from RA1 is stopped since the mobile is moved into RA2).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Mustajarvi'782 as taught by La Porta'359 for the same reason stated in Claims 1 and 10 above.

Allowable Subject Matter

7. Claims 4 and 12 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ian N Moore whose telephone number is 703-605-1531. The examiner can normally be reached on M-F: 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ken Vanderpuye can be reached on 703-308-7828. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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KENNETH VANDERPUYE
PRIMARY EXAMINER